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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,337	12/22/2004	Nancy Dean	H9925-3405	9316
62993	7590	10/17/2007		
BUCHALTER NEMER 18400 VON KARMAN AVE. SUITE 800 IRVINE, CA 92612			EXAMINER KRUER, KEVIN R	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 10/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b> 10/519,337</p>	<p><b>Applicant(s)</b> DEAN ET AL.</p>	
	<p><b>Examiner</b> Kevin R. Kruer</p>	<p><b>Art Unit</b> 1794</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I in the reply filed on July 23, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Specification***

2. The abstract of the disclosure is objected to because it is not on a separate sheet. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7, and 18, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the skilled artisan would go about selecting a combination of materials that would "minimize" interfacial thermal resistance. Specifically, it is not clear if the claim is intended to cover one specific combination of materials (ie that combination of materials with the lowest possible interfacial thermal resistance humanly possible) or if the claim is intended to be broader than that. If the claim is intended to read solely on the combination with the lowest possible interfacial thermal resistance humanly possible, then the claim has 112, first paragraph enablement issues.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5, 7, and 18, are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen et al (US 6,238,596).

Nguyen teaches a thermal interface material for an electronic component (herein understood to anticipate a semiconductor component of claims 18 and 19 and the heat spreader component of claim 1). The interface comprises a malenized rubber and at least on hydroxyl terminated olefin rubber (abstract). Herein the malenized rubber is understood to read on the crosslinking component of claim 2 (col 3, line 34). The composition further comprises a thermally conductive filler (col 3, lines 44+). Since the materials are the same as applicant's claimed materials, said reference is understood to teach a combination of materials designed to minimize interfacial thermal resistance in the layered thermal component.

7. Claims 1-5, 7, and 18, are rejected under 35 U.S.C. 102(b) as being anticipated by Pate et al (US 4,584,336).

Pate teaches a vulcanizable organosiloxane elastomer composition comprising 30-95wt% conductive filler (abstract). The composition is useful as a thermal interface adhesive and may be applied to electronic components (herein understood to read on

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the claimed semiconductor component of claims 18 and 19 and the heat spreader component of claim 1). The siloxane comprises hydroxyl groups and is crosslinked with an amine (col 3, lines 38+).

Since the materials are the same as applicant's claimed materials, said reference is understood to teach a combination of materials designed to minimize interfacial thermal resistance in the layered thermal component.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-3, 5-7, and 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartley et al (6,084,775) in view of Nguyen.

Bartley teaches a heat sink comprising a solder layer, an adjacent thermal conductive adhesive layer, and a heat sink (see Figure 4). Bartley does not teach the adhesive of Nguyen may be utilized as the thermally conductive adhesive. However, the adhesive of Nguyen is functionally equivalent to said layer and exhibits improved thermal conductivity (abstract). Thus, it would have been obvious to the skilled artisan to utilize the thermal adhesive of Nguyen in the laminate taught in Bartley in order to improve the thermal conductivity of the laminate.

Since the materials are the same as applicant's claimed materials, said reference is understood to teach a combination of materials designed to minimize interfacial

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thermal resistance in the layered thermal component. Alternatively, it would have been obvious to the skilled artisan to select materials that minimize the interfacial thermal resistance said selection would lead to the most efficient heat sink.

10. Claims 1-7, and 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartley et al (6,084,775) in view of Pate et al.

Bartley teaches a heat sink comprising a solder layer, an adjacent thermal conductive adhesive layer, and a heat sink (see Figure 4). Bartley does not teach the adhesive of Nguyen may be utilized as the thermally conductive adhesive. However, the adhesive of pate is functionally equivalent to said layer and exhibits improved thermal conductivity (col 1, lines 36+). Thus, it would have been obvious to the skilled artisan to utilize the thermal adhesive of Nguyen in the laminate taught in Bartley in order to improve the thermal conductivity of the laminate.

Since the materials are the same as applicant's claimed materials, said reference is understood to teach a combination of materials designed to minimize interfacial thermal resistance in the layered thermal component. Alternatively, it would have been obvious to the skilled artisan to select materials that minimize the interfacial thermal resistance said selection would lead to the most efficient heat sink.

### ***Response to Arguments***

Applicant's arguments filed 7/23/07 have been fully considered but they are not persuasive.

Applicant argues that the prior art does not teach at least one thermal interface material and the at least one heat spreader that are specifically chosen to knowingly

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and strategically minimize interfacial thermal resistance. Said argument is noted but is not persuasive for the reasons given above. Specifically, the reference teach the same materials as applicant's claimed materials. Thus, the minimization of interfacial thermal resistance must be inherent/latent to the prior art structures. Furthermore, the term "minimize thermal interfacial resistance" is indefinite for the reasons noted above.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

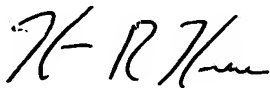
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kevin R. Kruer  
Patent Examiner-Art Unit 1794